IN THE SPECIFICATION:

Please insert the initial Sequence Listing filed in the USPTO on October 14, 2008.

Please amend paragraph [00014] on page 6, line 7 as follows:

FIG. 4 is another embodiment for detecting a target substance using rotation of the gold nanorods (SEQ ID NOS: 1 and 2).

Please amend paragraph [00030] on page 13, line 19 as follows:

In another embodiment, the gold nanorods are used as part of a molecular semaphore to detect the presence of a single molecule of a substance. Instead of attaching the gold nanorod directly to the gamma-subunit arm, a known deoxyribonucleic acid (DNA) oligonucleotide or an antibody is attached between gold nanorod 52 and the rotating gamma-subunit arm 26 of the F1-ATPase enzyme 10, as shown in FIG. 4. The known DNA structure is the detectiong DNA strand 50 (SEQ ID NO:1). A protein or bonding molecule 56, such as avidin, is used to anchor a first end of the detection DNA strand 50 (SEQ ID NO:2) to gamma-subunit arm 26 and further to anchor a second end of the detection DNA strand 50 (SEQ ID NO:1) to gold nanorod 52.

Please amend paragraph [00031] on page 13, line 32 as follows:

A sample of the target substance or molecule to be detected is introduced. The sequence of nucleotide base pairs is unique and defines the matching strand. If the DNA sequence of the target molecule matches DNA strand 50 (SEQ ID NO:1), i.e., the nucleotide bases of the target DNA strand correspond to the nucleotide bases of the detection DNA strand 50 (SEQ ID NO:1), such as shown in FIG. 4 (SEQ ID NO:2), then the target DNA ~~stand~~ strand will hybridize to the detection DNA ~~stand~~ strand 50 (SEQ ID NO:1) to form a bridge or linkage (See SEQ ID NO:2). If the nucleotide bases of the target DNA strand do not correspond to the nucleotide bases of the detection DNA strand 50, then the DNA of the target molecule will not hybridize to the detection DNA strand 50 and no bridge or linkage is formed. The hybridized DNA structure is the bridge, which provides a structural link between gamma-subunit arm 26 and gold nanorod 52 to cause gold nanorod 52 to rotate with the F1-ATPase enzyme 10. Without the formation of the linkage,

the gold nanorod 52 will not rotate with the F1-ATPase enzyme. Therefore, if the DNA strands match, i.e., if the target substance is detected, then the bridge is formed and gold nanorod 52 rotates with gamma-subunit arm 26. If the DNA strands do not match, i.e., the target substance is not detected, then the linkage is not formed and gold nanorod 52 does not rotate with gamma-subunit arm 26. If the target substance is detected, then the gold nanorod will rotate with the F1-ATPase enzyme and the nanoscale motion detector will flash alternating red and green lights as discussed above. If the target substance is not detected, then the gold nanorod will not rotate with the F1-ATPase enzyme and the detector will remain dark. The observation of the red and green lights is the detection mechanism for the target substance.